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Claim Amendments

1. (currently amended) Apparatus for reducing cracking at the body-shank junctions of a hardened steel die block, by softening the shank portion only, the shank portion of said die block having a flat surface, said apparatus including, in combination

support structure for maintaining a die block having a body portion and a shank portion stationary during processing,

an electric heat source in close proximity to the flat surface of the shank portion of the die block, said flat surface being uncovered,

said electric heat source being composed of parallel runs of heating elements,

all portions of adjacent parallel runs of said heating elements being substantially equally distantly spaced from one another in a common flat plane,

all portions of said adjacent parallel runs of said heating elements being substantially equidistantly spaced from the entire flat surface area of the shank portion of the die block which is in close heat transference proximity thereto.

said electric heat source being positioned to impinge heat from the electric heat source uninterruptedly directly on to the uncovered flat surface of the shank portion of the die block,

control means which limit the amount of heat energy which impinges onto the uncovered flat surface of the shank portion to an amount which softens only

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the shank portion of the die block to a hardness level lower than the hardness level of the body portion of the die block which is underneath and integral with the shank portion to effect differential hardening between the shank and body portions of the die block whereby subsequent cracking at the shank-body junction of the steel die block is substantially eliminated, and

structural heat blocking members surrounding the electric heat source at all locations except where the flat surface shank portion of the die block is located in unobstructed facing relationship to the heating elements of the heat source.

2. (previously presented) The apparatus of claim 1 further characterized in that the electric heat source is an induction heating coil.

3. (previously presented) The apparatus of claim 2 further including means for enveloping those portions of the induction heating coil which are not in operative relationship with the body portion of the die block.

4. (previously presented) The apparatus of claim 3 further characterized in that

the means for confining the induction heating currents are substances selected from the group consisting of stainless steel, granite and ceramic materials

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which are capable of withstanding, without substantial distortion, the temperatures generated during treatment by the induction heating coil.

5. (cancelled)

6. (cancelled)

7. (previously presented) The apparatus of claim 1 further characterized in that the electric heat source consists of an infrared heater comprised of tungsten halogen lamps.

8. (previously presented) The apparatus of claim 7 further characterized in that the tungsten halogen lamps lie in a common flat plane and are perpendicularly spaced from the surface of the shank portion of the die block.

9. (previously presented) The apparatus of claim 7 further characterized in that the tungsten halogen lamps are short wave lamps.

10. (currently amended) Apparatus for softening a selected portion of a metal object, said selected portion having a flat surface, which includes, in combination

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an infrared heater in close proximity to the flat surface of the selected portion of said metal object, said flat surface being uncovered,

said infrared heater being composed of parallel runs of heating elements,

said parallel runs of heating elements lying in a common flat plane,

substantially all portions of adjacent parallel runs of said heating elements being substantially equally distantly spaced from one another, in a common flat plane

all portions of said adjacent parallel runs of said heating elements being substantially equidistantly spaced from the entire flat surface area of the selected portion of the metal object which is in close heat transference proximity thereto,

said infrared heater being positioned to impinge electrical energy directly uninterruptedly directly on to the flat surface of said selected portion from said infrared heater,

structural heat blocking members surrounding the infrared heater at all locations except where the flat surface of the selected portion of the metal object is located in unobstructed facing relationship to the infrared heater,

infrared heater controls means which limit the depth to which the infrared heating is applied to the selected portion having the flat surface,

to thereby soften the selected portion but not the remainder of the metal object.